Derby IM 091-3(49)

Public Information and Design Alternatives Meeting

Caswell Avenue (TH 1)- Bridge # 1 over I91

December 7, 2015

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AGENCY OF TRANSPORTATION

Introductions

- **Carolyn W. Carlson, P.E.**

  VTrans Senior Structures Project Manager

- **Martha Evans-Mongeon, P.E.**

  VTrans Design Engineer

- **Fianna Barrows, E.I.**

  VTrans Design Engineer

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Purpose

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss alternatives that were considered
- Discuss our recommended alternative
- Provide an opportunity to ask questions and voice concerns

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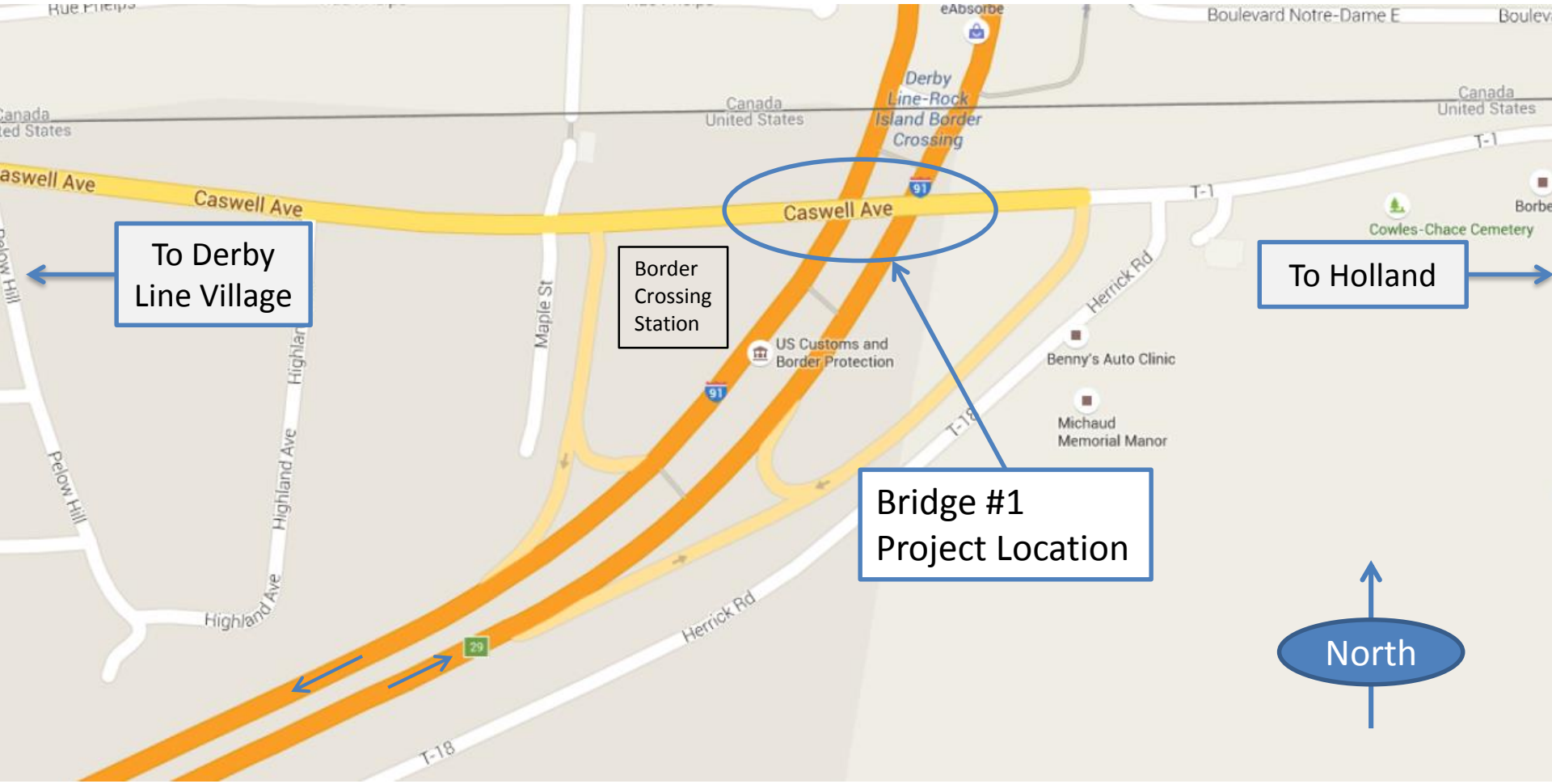
Location



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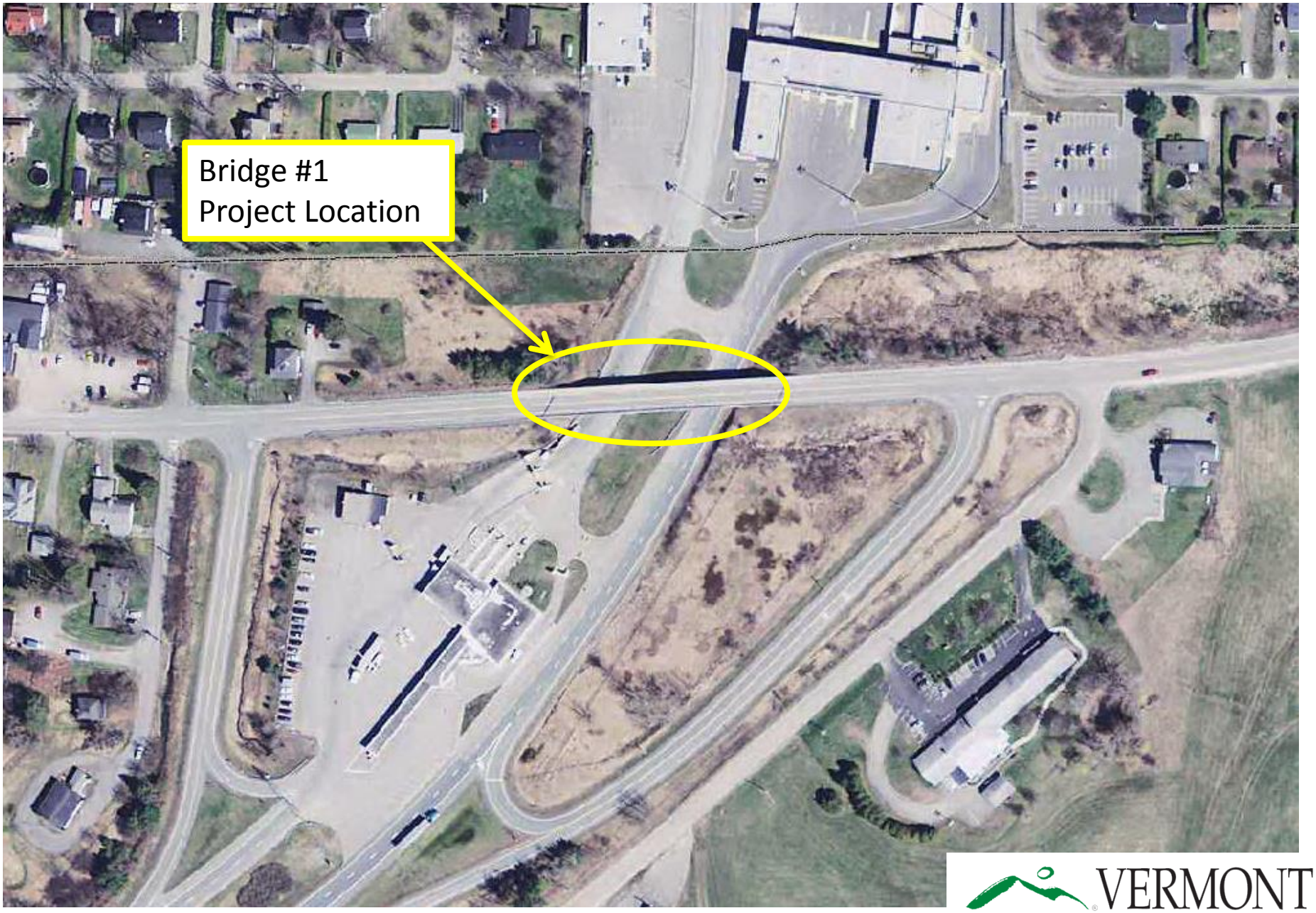

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Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Recommended Alternative
- Maintenance of Traffic
- Schedule
- Summary
- Next Steps
- Questions

VTrans Project Development Process

Scope

- Identify resources & constraints
- Evaluate alternatives
- Public Outreach
- Build consensus

Design

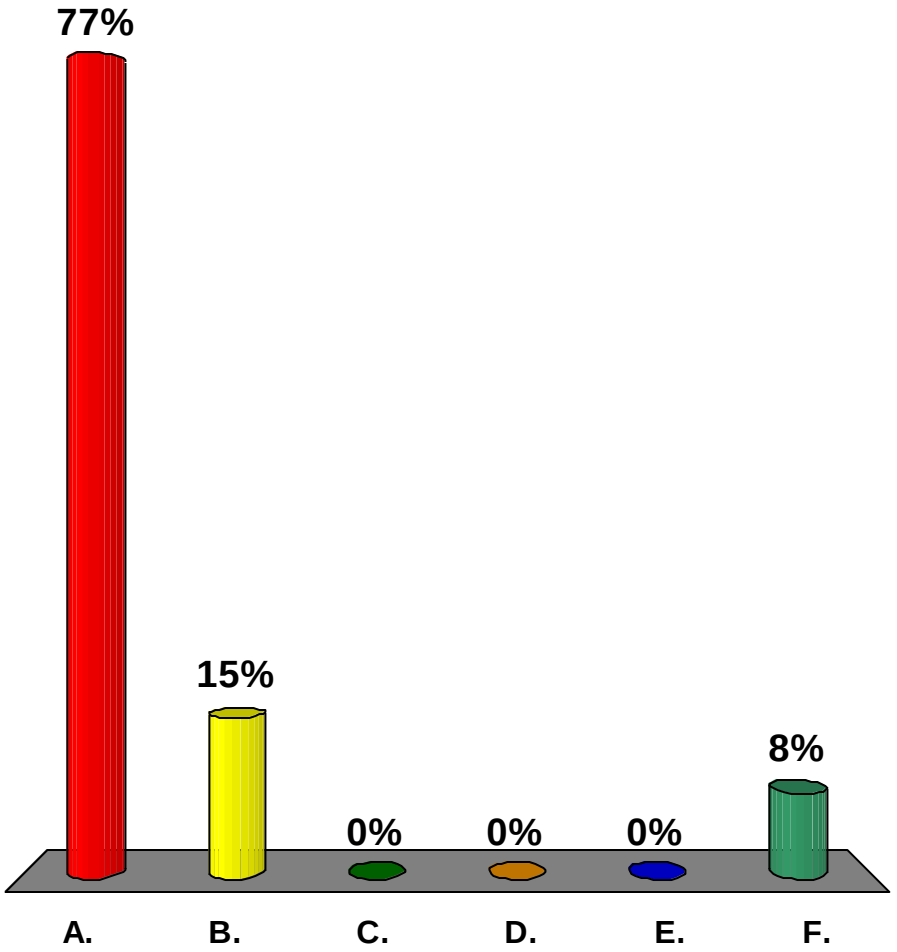
- Quantify areas of impact
- Environmental permits
- Develop plans, estimate, and specifications
- Right-of-way process if necessary

Construct

- Contract
- Bid
- Award
- Build

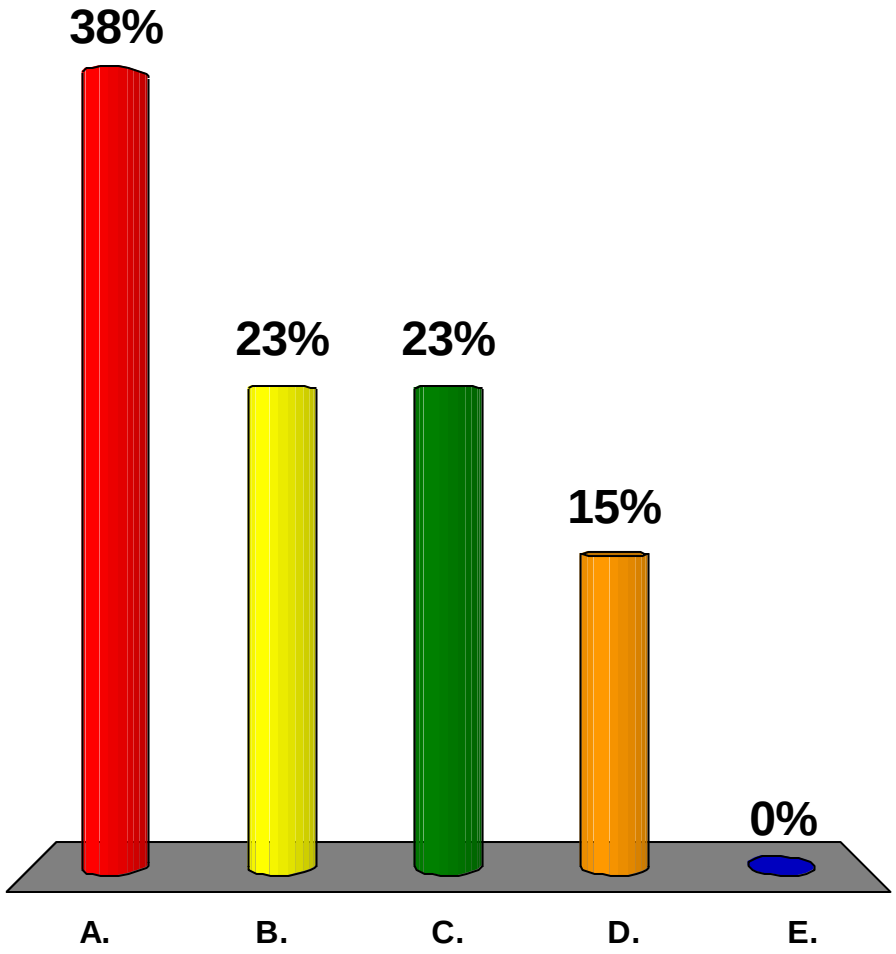
Who are you representing?

A. Municipal Official
B. Resident
C. Local Business
D. Independent Organization
E. Emergency Services
F. Other



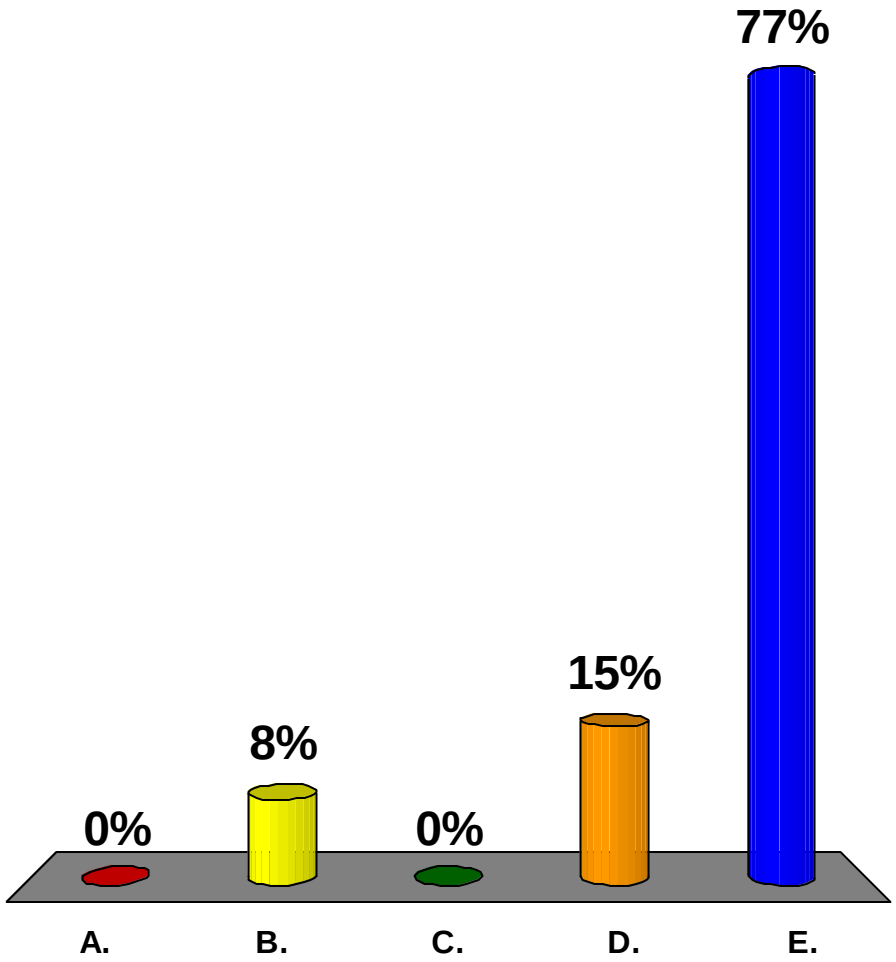
How often do you use this segment of Caswell Avenue?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



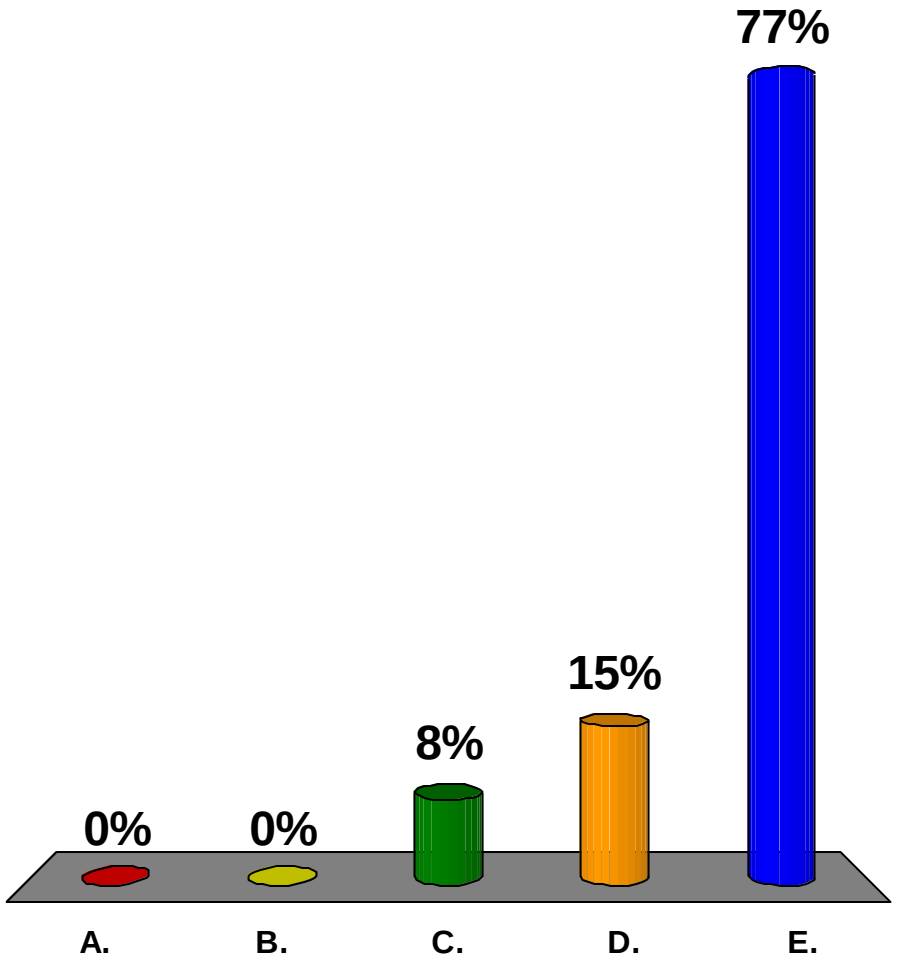
How often do you walk over the bridge?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



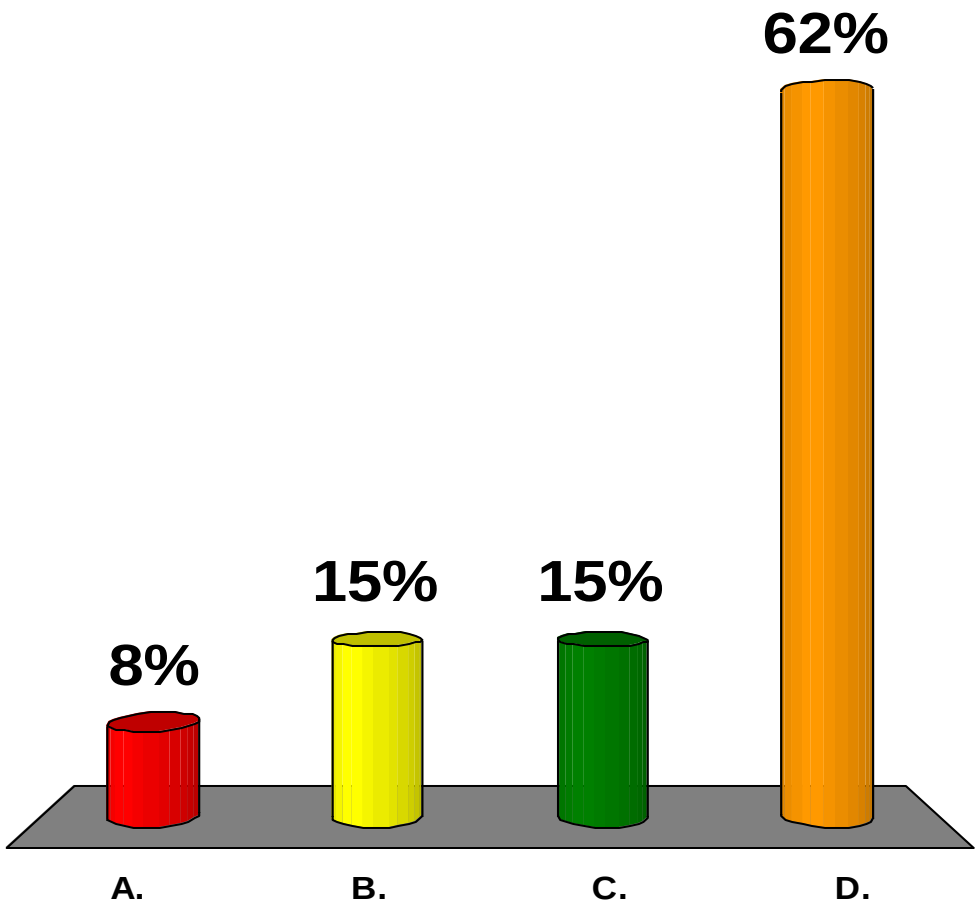
How often do you bike over the bridge?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



What is your reason for attending this meeting?

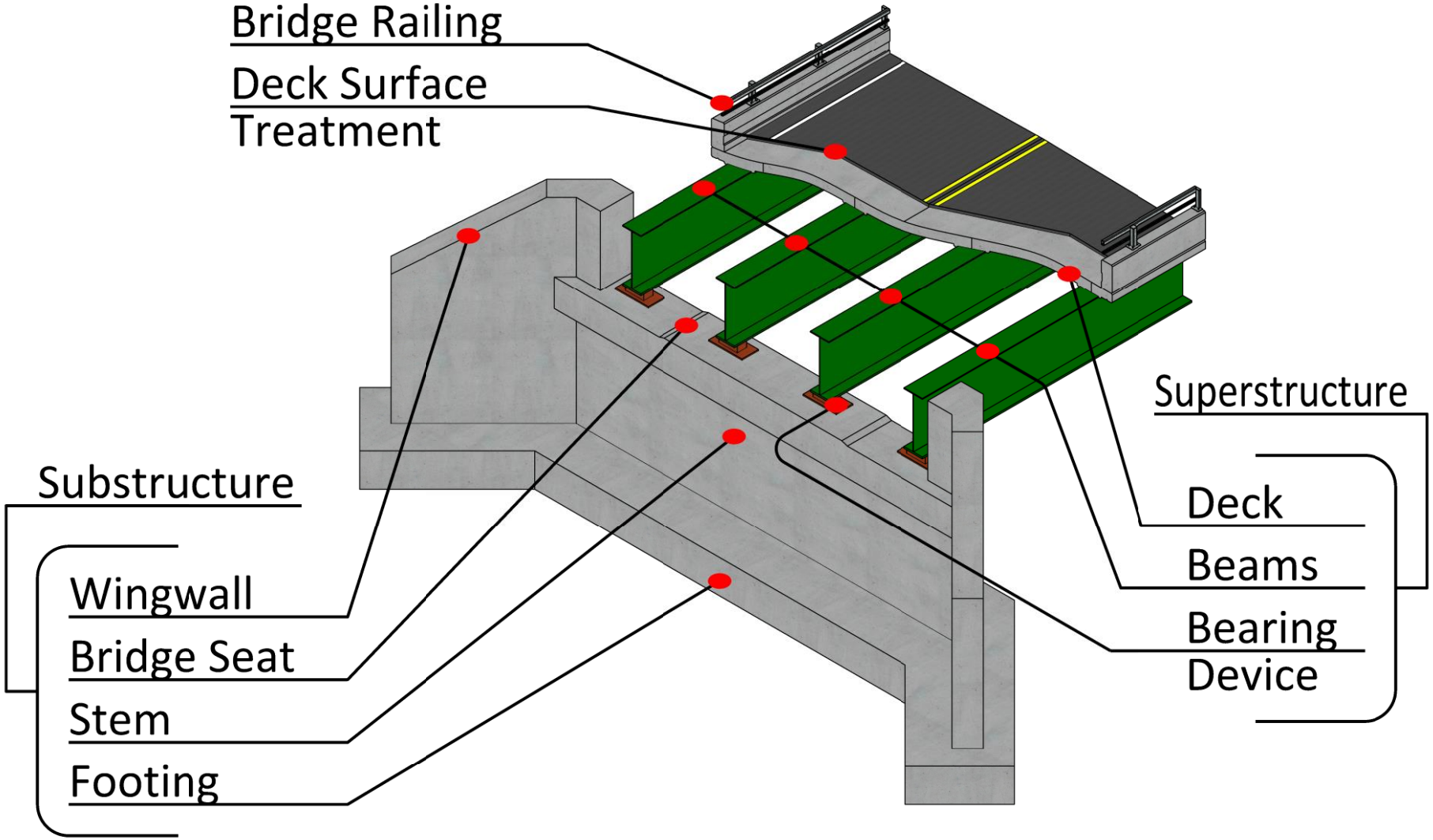
A. Specific concern
B. General Interest
C. Live in close vicinity
D. Other



Project Overview

- General Bridge Definitions
- Existing Conditions
- Criteria and Considerations for Design
- Considered Alternatives
- Recommended Alternative

General Bridge Definitions



Existing Bridge Information

- Roadway classification: Rural Major Collector (Class 1 State Highway)
- Bridge type: 5 Span Rolled Beam, Concrete Deck with Pavement
- Constructed: 1962
- Ownership: State of Vermont

Existing Conditions

- Substandard bridge railing
- Damages and spalling on the curb and sidewalk
- Significant deck cracking
- Paint is peeling from girders
- Spalling of south side fascia and piers, rebar exposed

Bridge Rail
(installed in 1991)

Sidewalk Damage

Joint Failure

Beams

Deck Cracks

Bearings

Fascia Concrete Failure

Pier Spalling

Criteria and Considerations for Design

- ADT: 1,500
- 8.3% trucks
- Design Speed limit of 30 mph
- Visibility from US Border Station
- Rebuild of US Border Station
- Pedestrian Access

Bridge Alternatives Discussed

No action

- 10 year design life
- Not considered due to the available funding for this project

Repair/ Rehabilitation

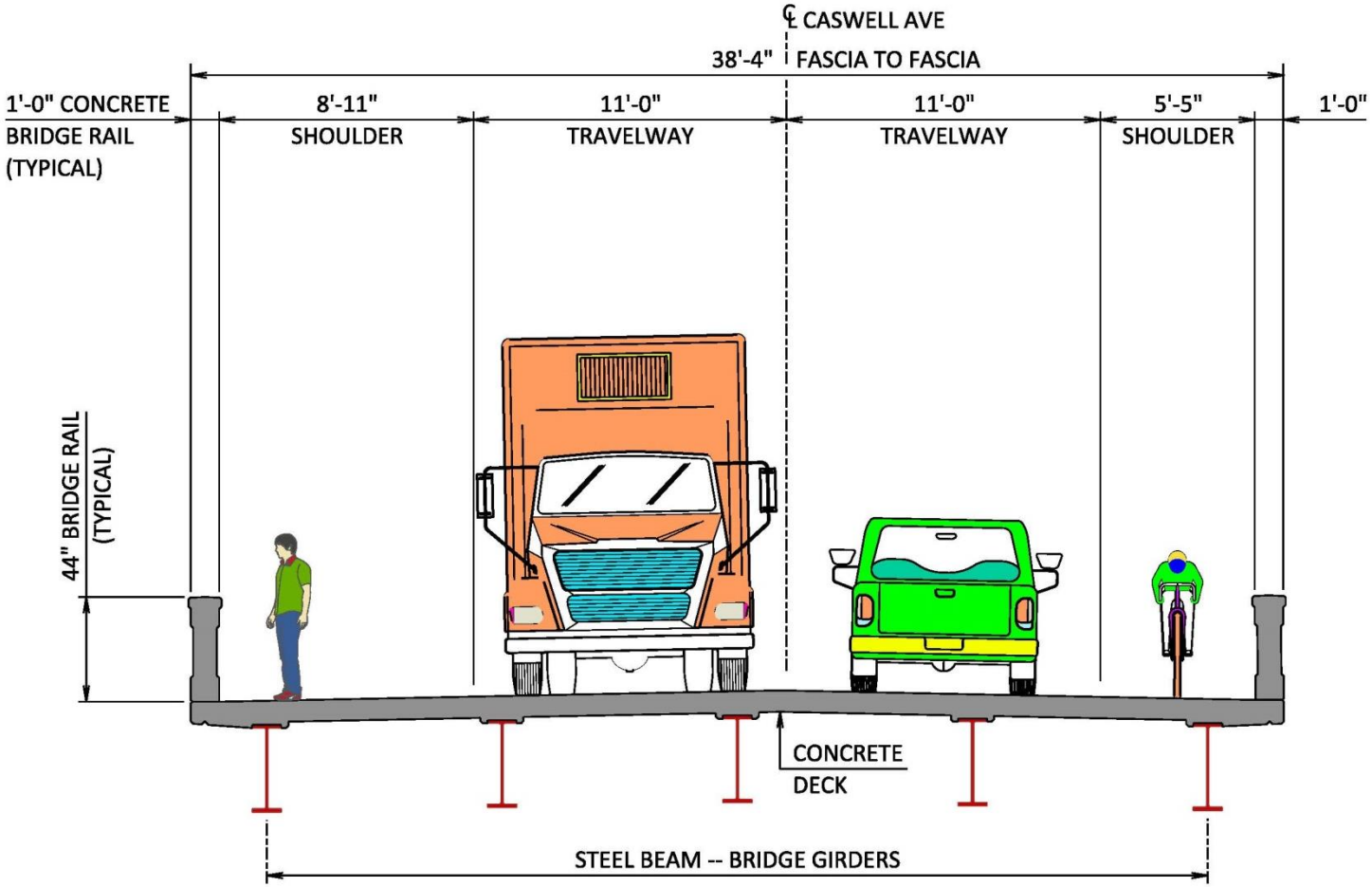
- Concrete deck patching, railing replacement, new fascia required on the south side of the bridge due to spalling and rebar exposure and spot painting of the rolled beams and diaphragms
- 20 year design life
- Maintain typical section

Replacement of Deck, Railing, Girders, and Substructure Repair

- Longest design life
- Sidewalk/ Shoulder width options

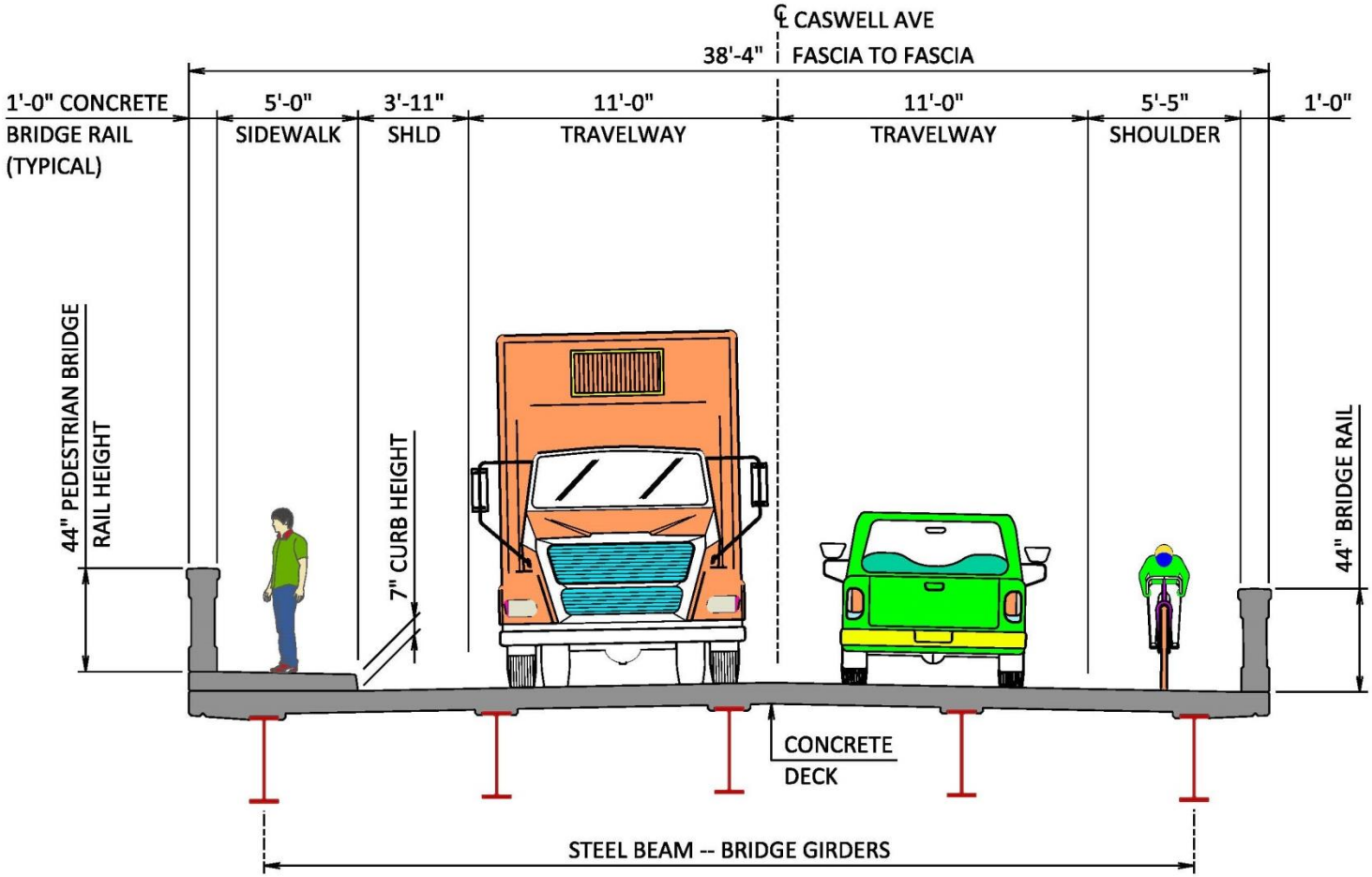
Proposed Typical Section 1

- No sidewalk
- Wider shoulder for bikes and pedestrians on the north side
- 2 lanes each 11′ wide
- Same centerline as existing



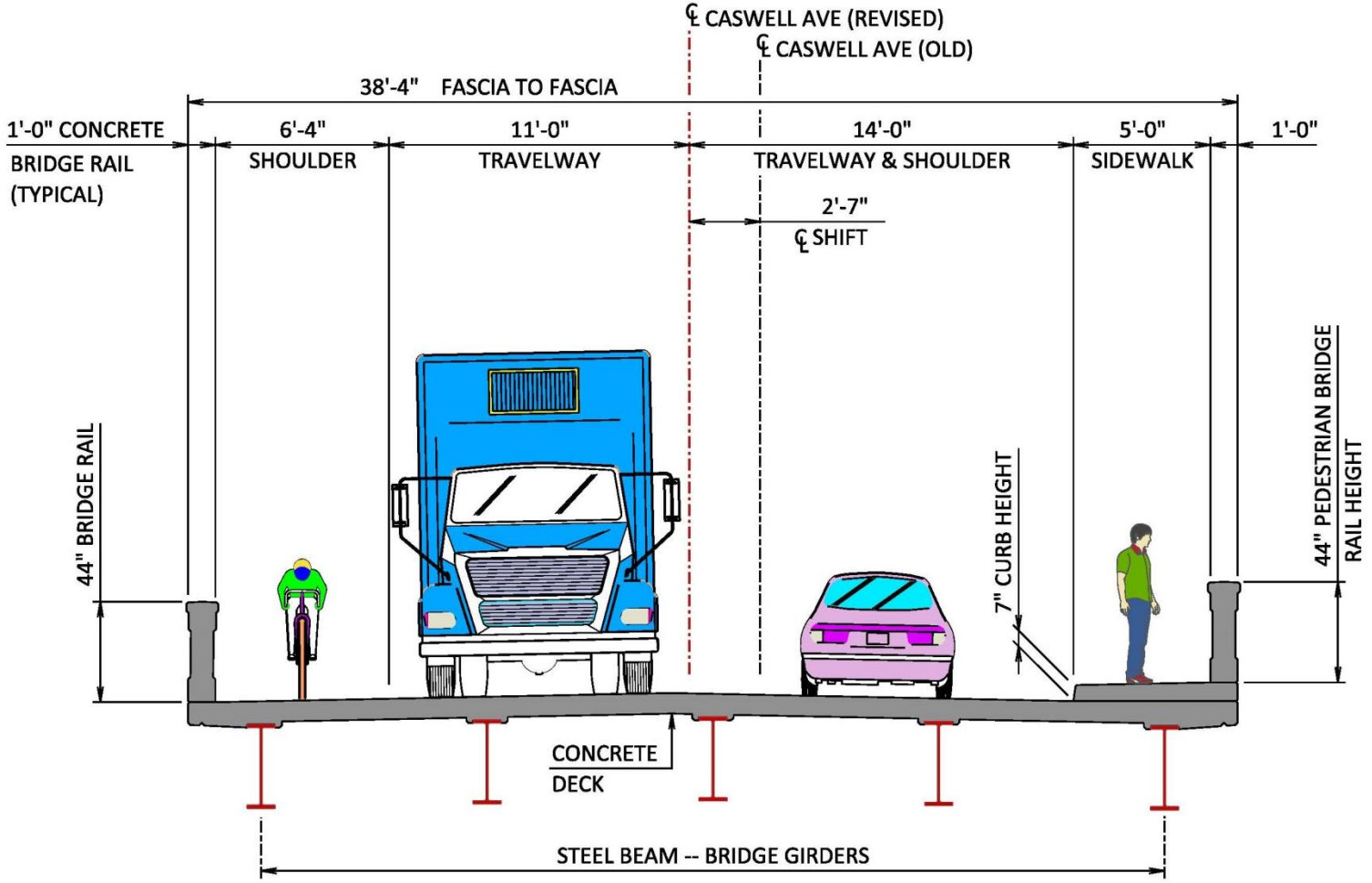
Proposed Typical Section 2

- 5’ sidewalk on North side
- Unequal shoulders
- Same centerline as existing
- 2 lanes each 11’ wide



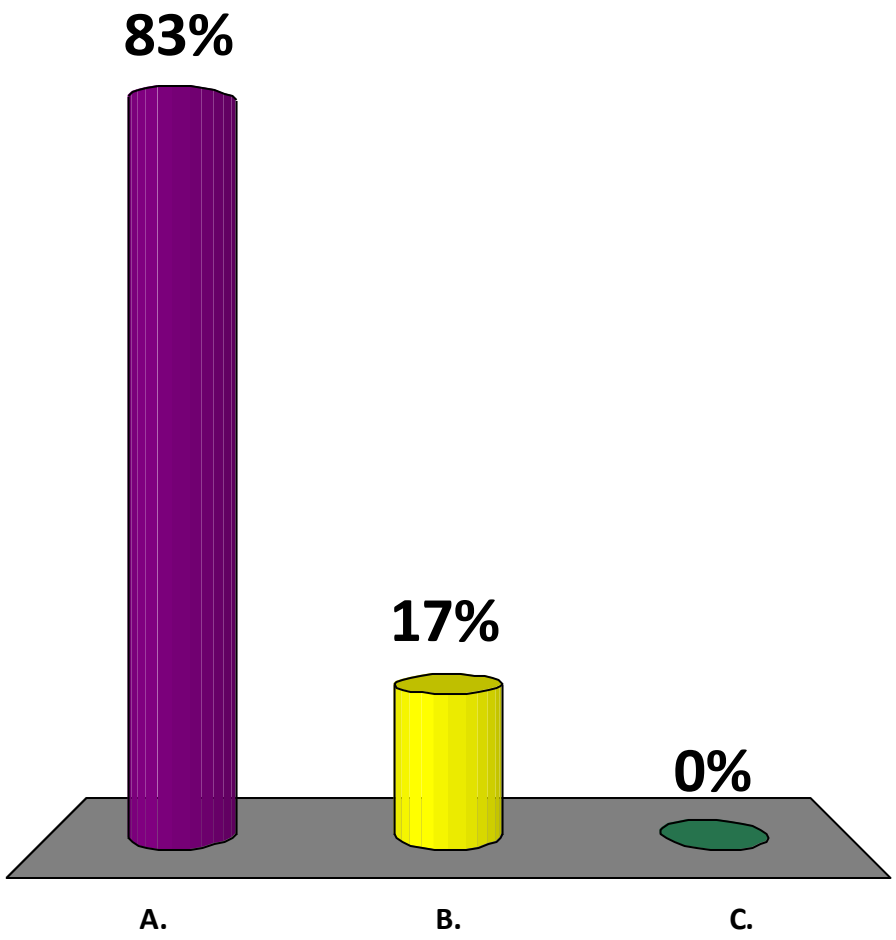
Proposed Typical Section 3

- 5’ Sidewalk on South side
- Unequal shoulders
- Adjustment of centerline by 2’- 7”
- 2 lanes each 11’ wide



What is your preferred typical section?

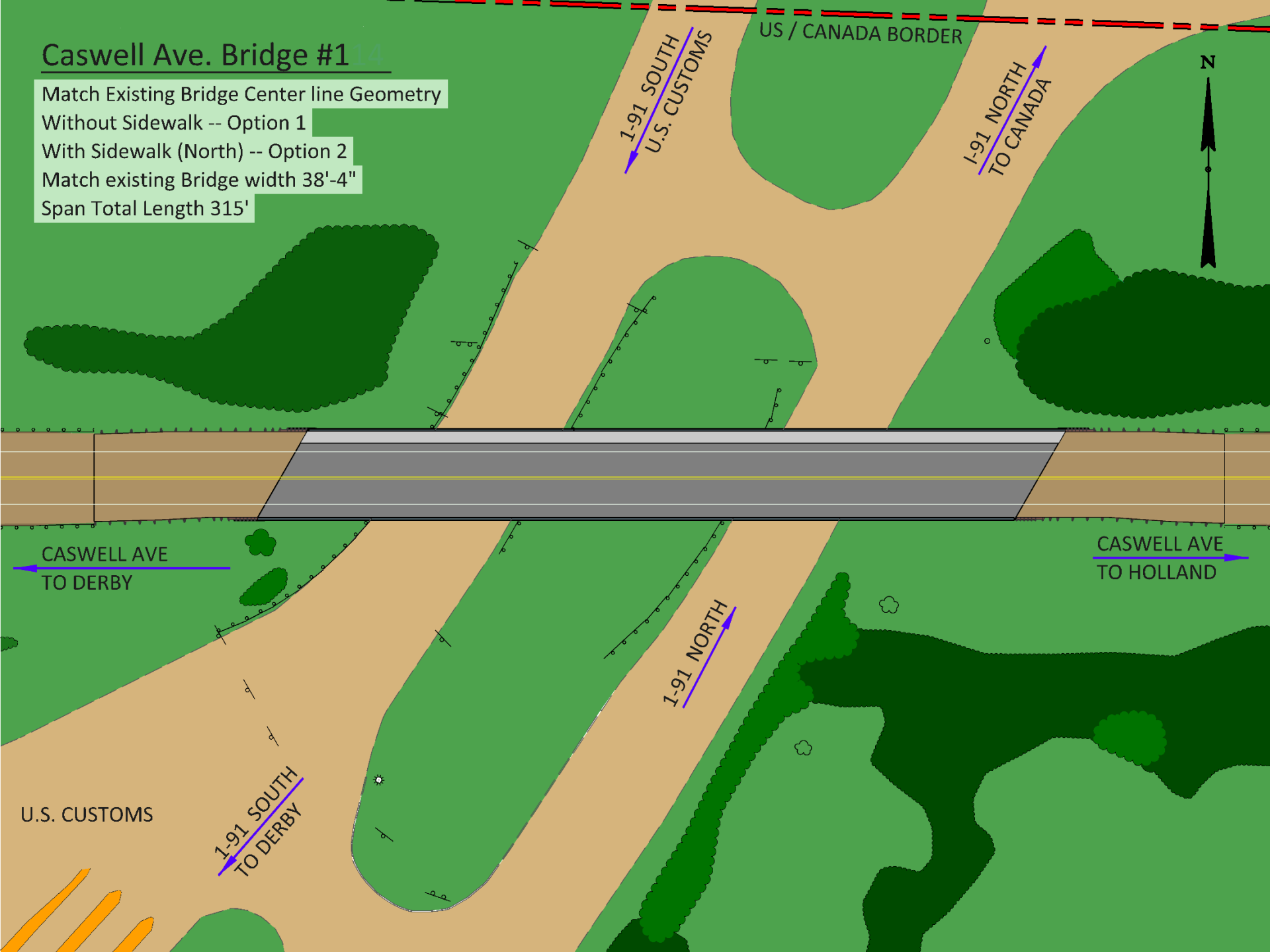
A. Option 1
B. Option 2
C. Option 3

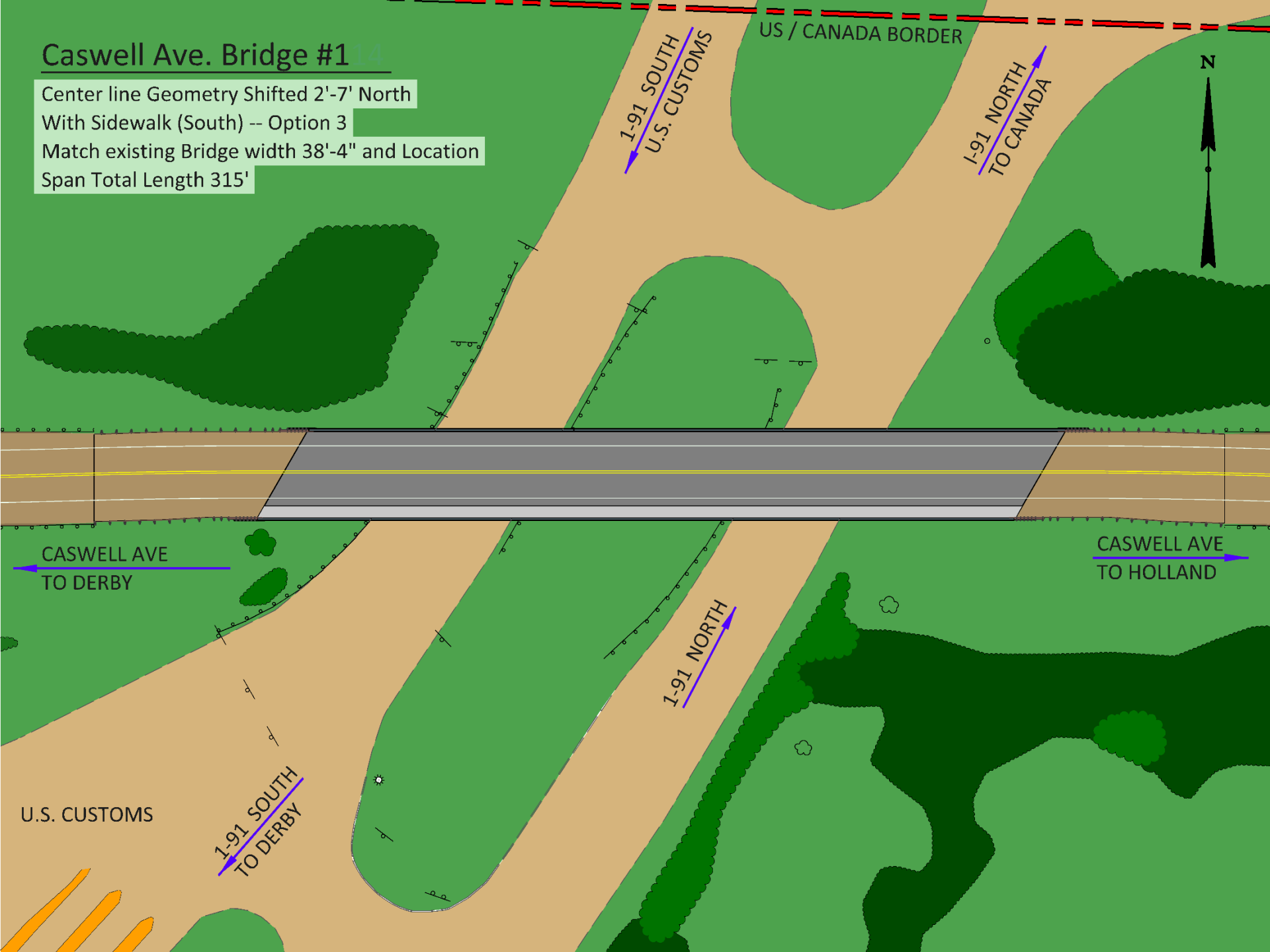


Recommended Alternative (Option 1)

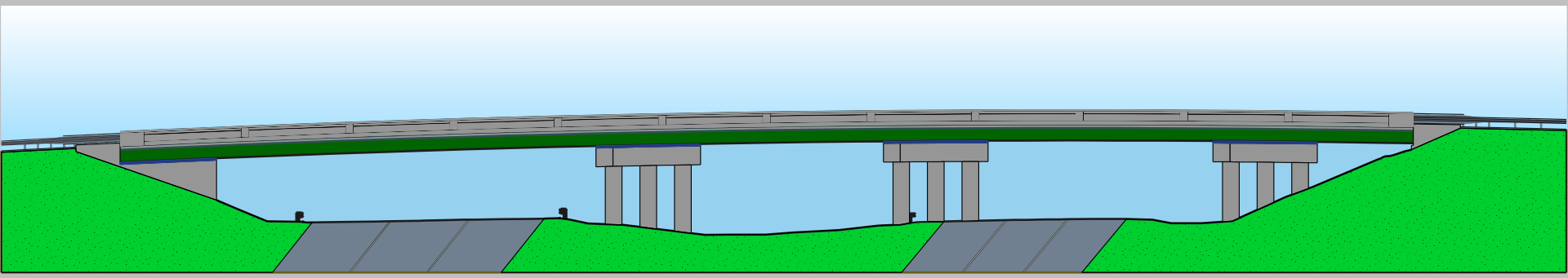
Full Superstructure Replacement

- Maintain existing bridge width and centerline
  - Remove sidewalk and have a wider shoulder on the north side for pedestrians and bikes
- Replace girders, bearings, and cast in place deck
- Removal of westerly pier and replacement of pier caps


Caswell Ave. Bridge #114
Match Existing Bridge Center line Geometry
Without Sidewalk -- Option 1
With Sidewalk (North) -- Option 2
Match existing Bridge width 38'-4"
Span Total Length 315'
US / CANADA BORDER
1-91 SOUTH
U.S. CUSTOMS
I-91 NORTH
TO CANADA
N
CASWELL AVE
TO DERBY
CASWELL AVE
TO HOLLAND
1-91 NORTH
U.S. CUSTOMS
1-91 SOUTH
TO DERBY


Caswell Ave. Bridge #114
Center line Geometry Shifted 2'-7' North
With Sidewalk (South) -- Option 3
Match existing Bridge width 38'-4" and Location
Span Total Length 315'
US / CANADA BORDER
1-91 SOUTH
U.S. CUSTOMS
I-91 NORTH
TO CANADA
N
CASWELL AVE
TO DERBY
CASWELL AVE
TO HOLLAND
1-91 NORTH
U.S. CUSTOMS
1-91 SOUTH
TO DERBY

Proposed Profile



Example of New Bridge Railing

Concrete Railing

4 Rail Box Beam

Combination Railing

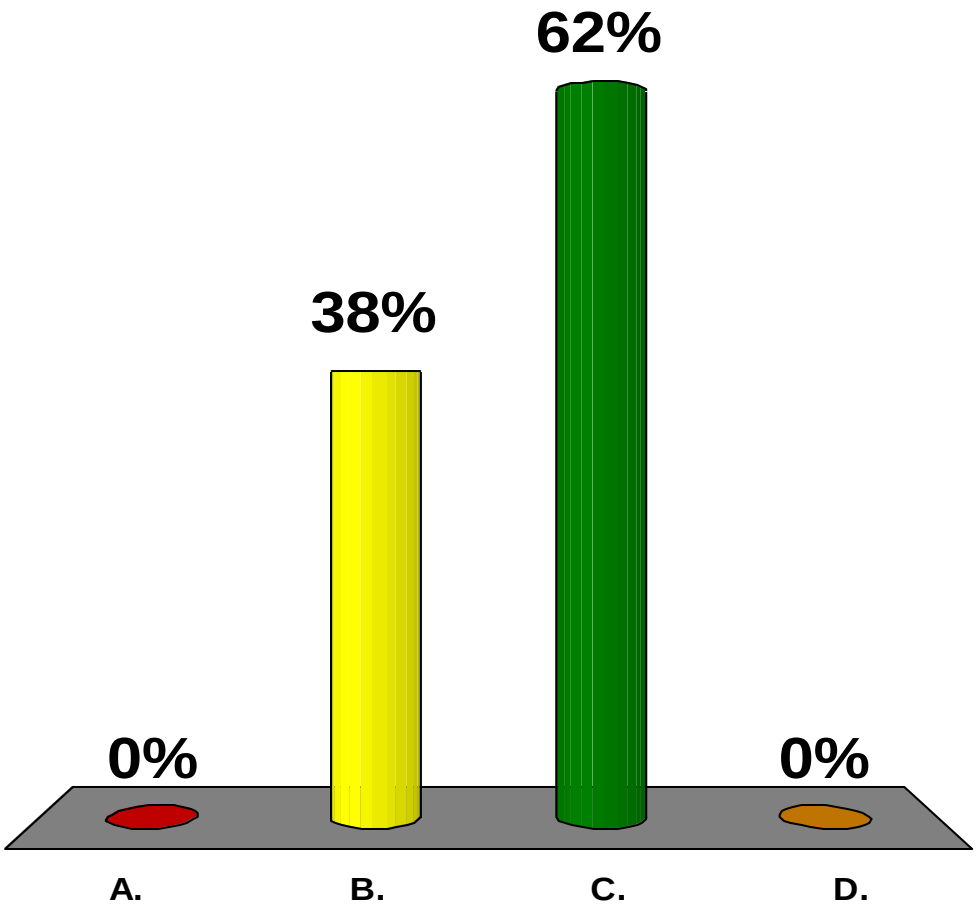
What railing would you like to see?

A. Concrete

B. Combination of Concrete and Steel

C. Steel

D. Other



Options Considered for Maintenance of Traffic on Bridge #1 During Construction

1 Phased Construction

- One lane road with two-way traffic using traffic signal
- Advantages, no detour required
- Disadvantages are the increased cost and complexity including traffic control
- Slight increase in construction time and decrease in safety

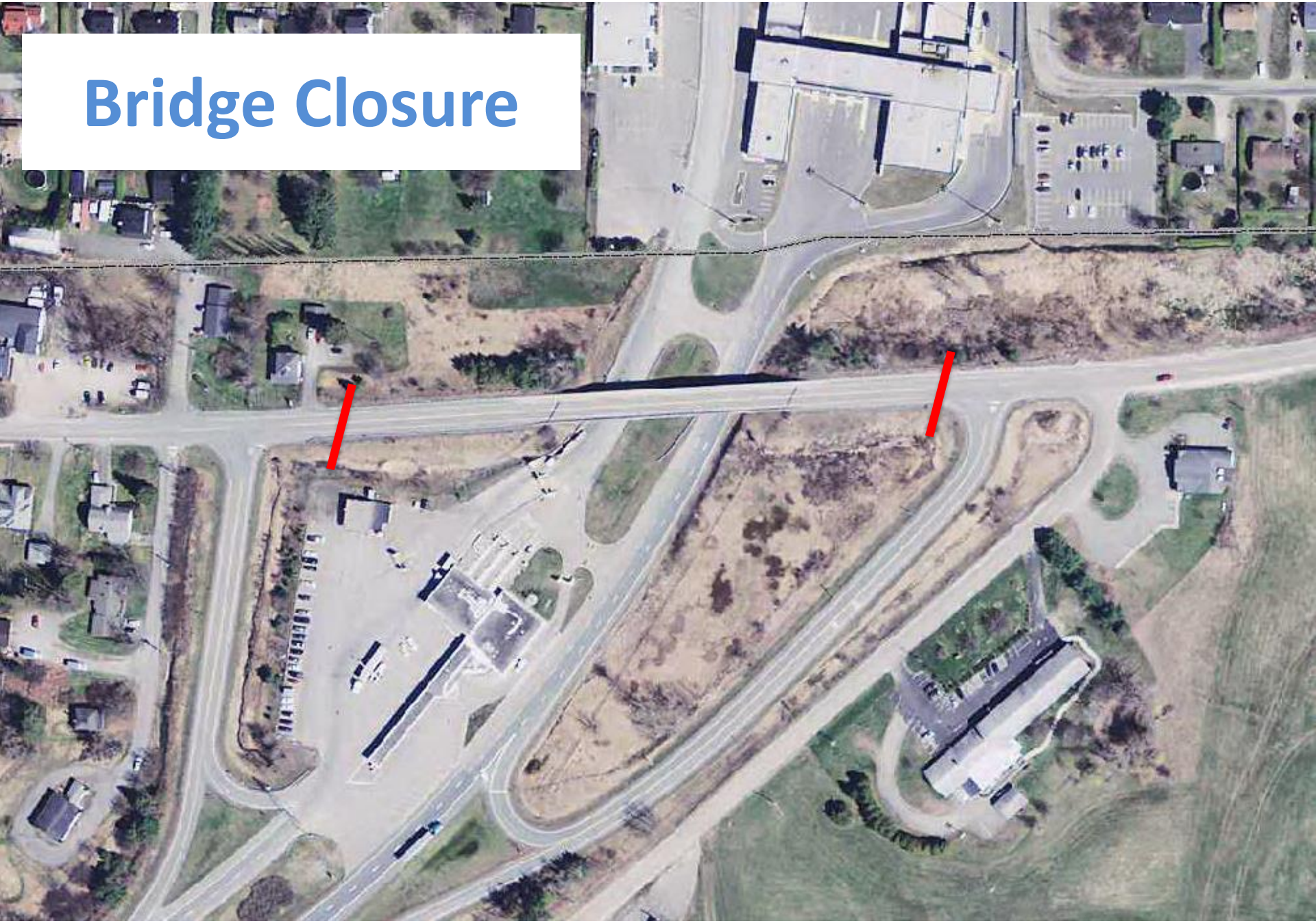
2 Bridge Closure

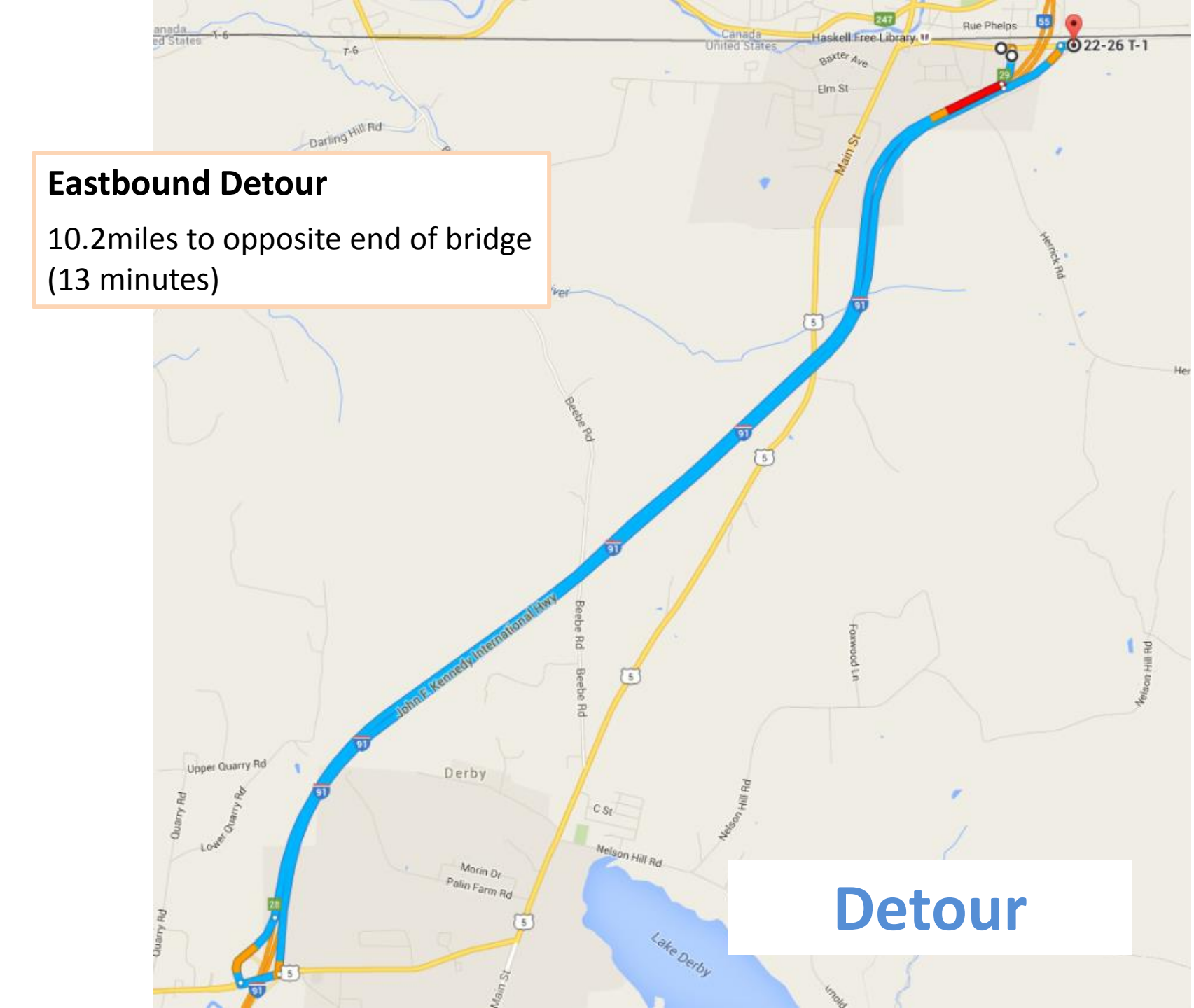
- Closing the road and detouring traffic around
- Advantages, no traffic back up, shorter construction duration, higher level of safety during construction
- Disadvantages, long detours, more costly design and construction

Phased Construction

- Bridge maintains one lane of traffic while construction is preformed on the other side

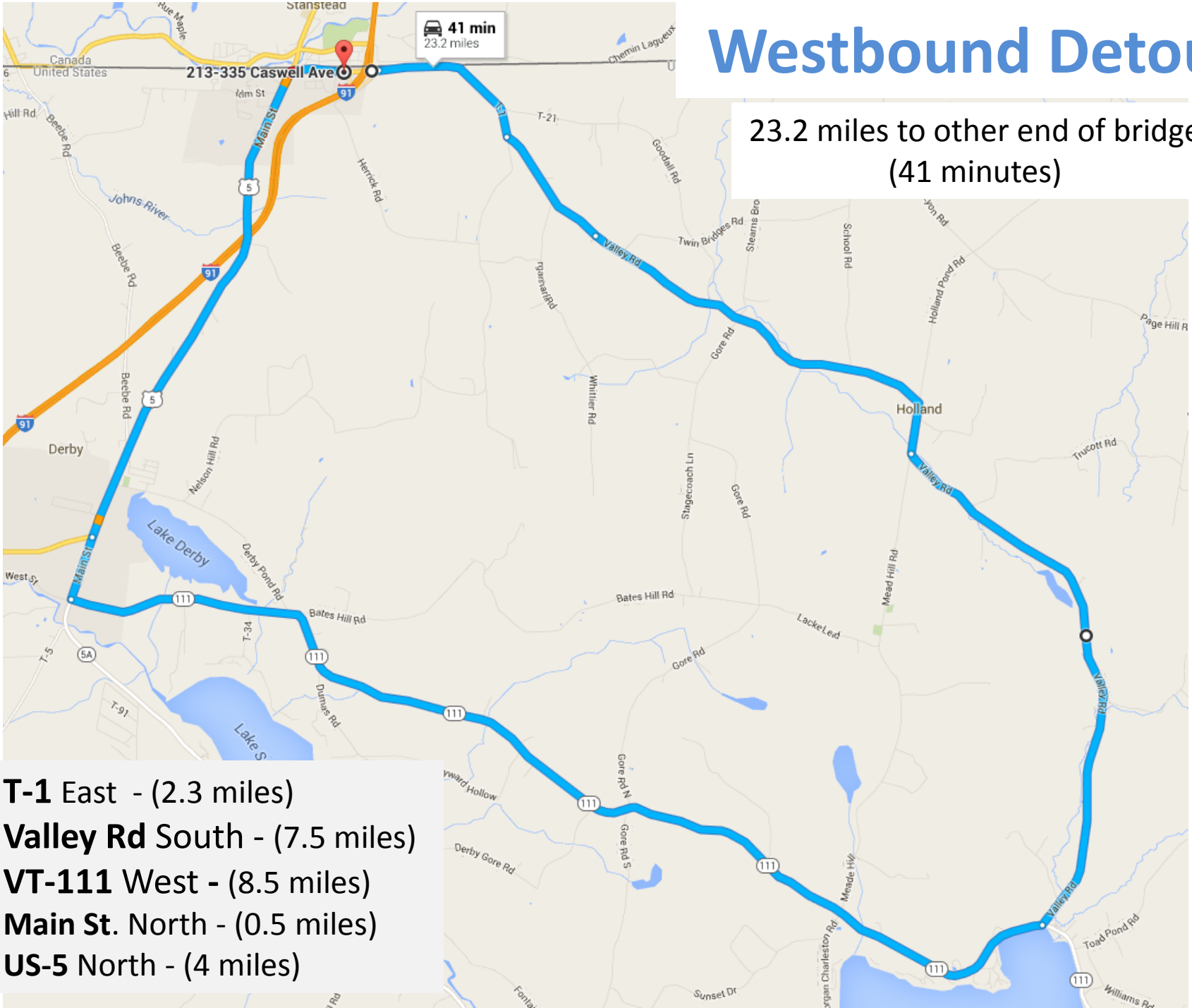
Bridge Closure




Eastbound Detour
10.2miles to opposite end of bridge
(13 minutes)
Haskell Free Library
Rue Phelps
22-26 T-1
Baxter Ave
Elm St
Main St
Darling Hill Rd
Herrick Rd
Beebe Rd
John F Kennedy International Hwy
Upper Quarry Rd
Lower Quarry Rd
Quarry Rd
Derby
C St
Nelson Hill Rd
Morin Dr
Palin Farm Rd
Foxwood Ln
Lake Derby
Detour

Westbound Detour

23.2 miles to other end of bridge
(41 minutes)

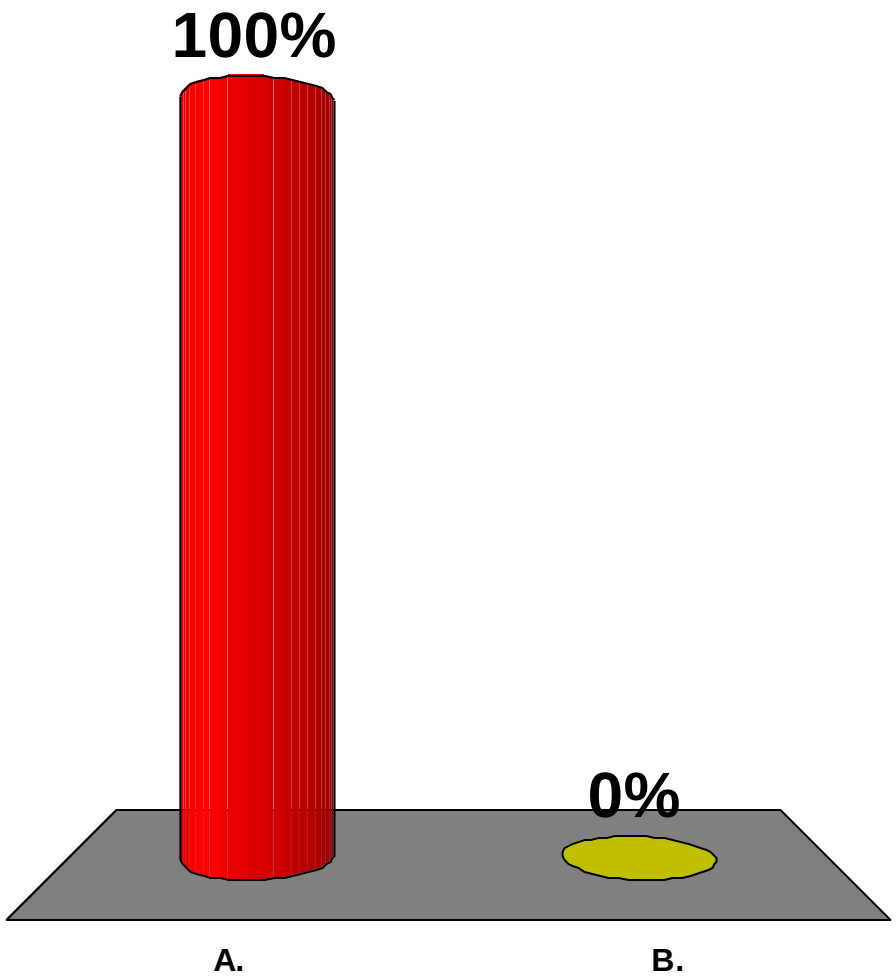


- **T-1** East - (2.3 miles)
- **Valley Rd** South - (7.5 miles)
- **VT-111** West **-** (8.5 miles)
- **Main St**. North - (0.5 miles)
- **US-5** North - (4 miles)

Would you prefer to see the use of phased construction or closure of the bridge?

A. Phased Construction

B. Bridge Closure

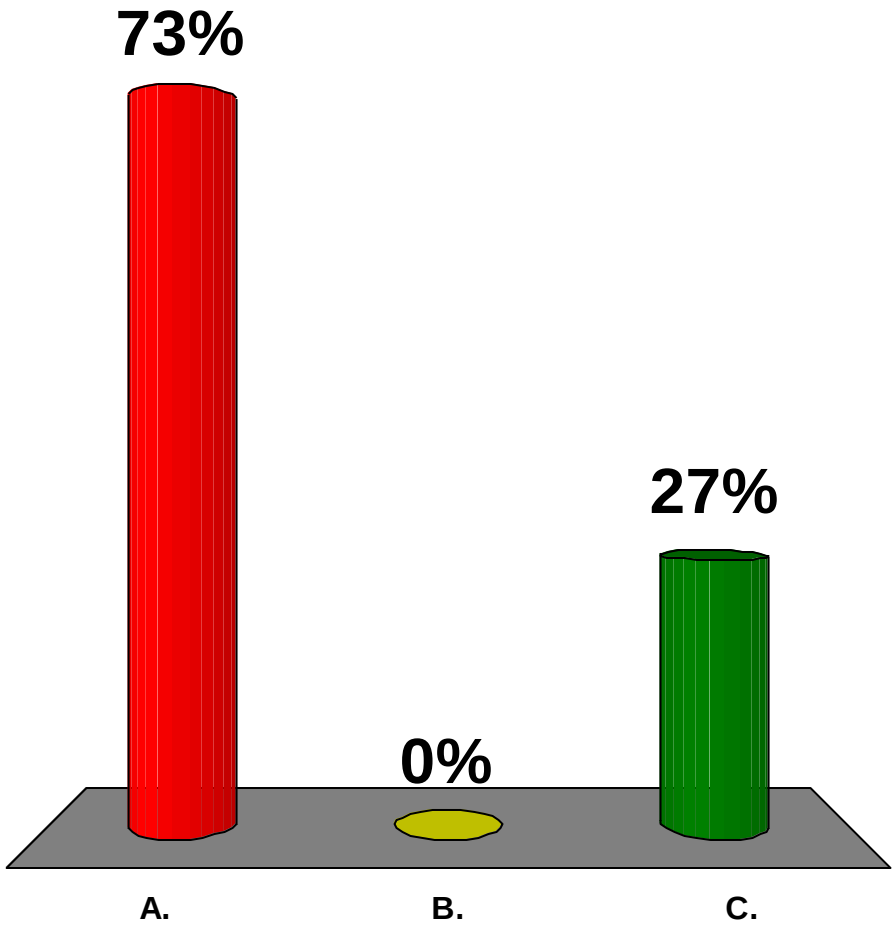


What would be the maximum acceptable length of closure for Bridge #114?

A. 15 weeks

B. 20 weeks

C. 25 weeks



Interstate 91 Phased Construction Options

1 Closure of one lane in each direction

- Likely to back up traffic during peak hours
- Increase construction time
- Increased safety hazards

2 Temporary Roadway

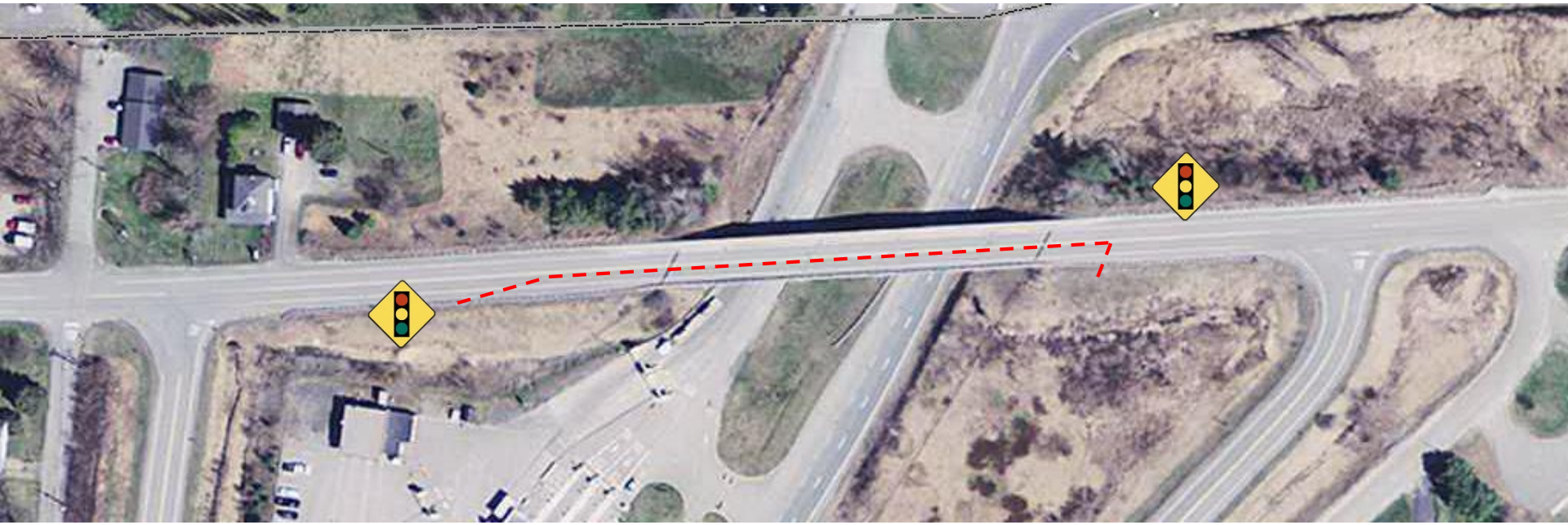
- No traffic back up
- Costly construction and design
- Safe during construction

3 Temporary Traffic Stoppages

- Temporary stop of all traffic in a certain area during high risk construction activities
- This time would be limited per contract and take place during off peak hours

Our Traffic Recommendation

- Phased construction on the bridge
- Temporary traffic stoppages on Interstate 91



Schedule

- Preliminary Plans – June 2016
- Final Plans – March 2017
- Contract Plans – July 2017
- Bid Advertisement – Fall 2017
- Construction – Summer 2018

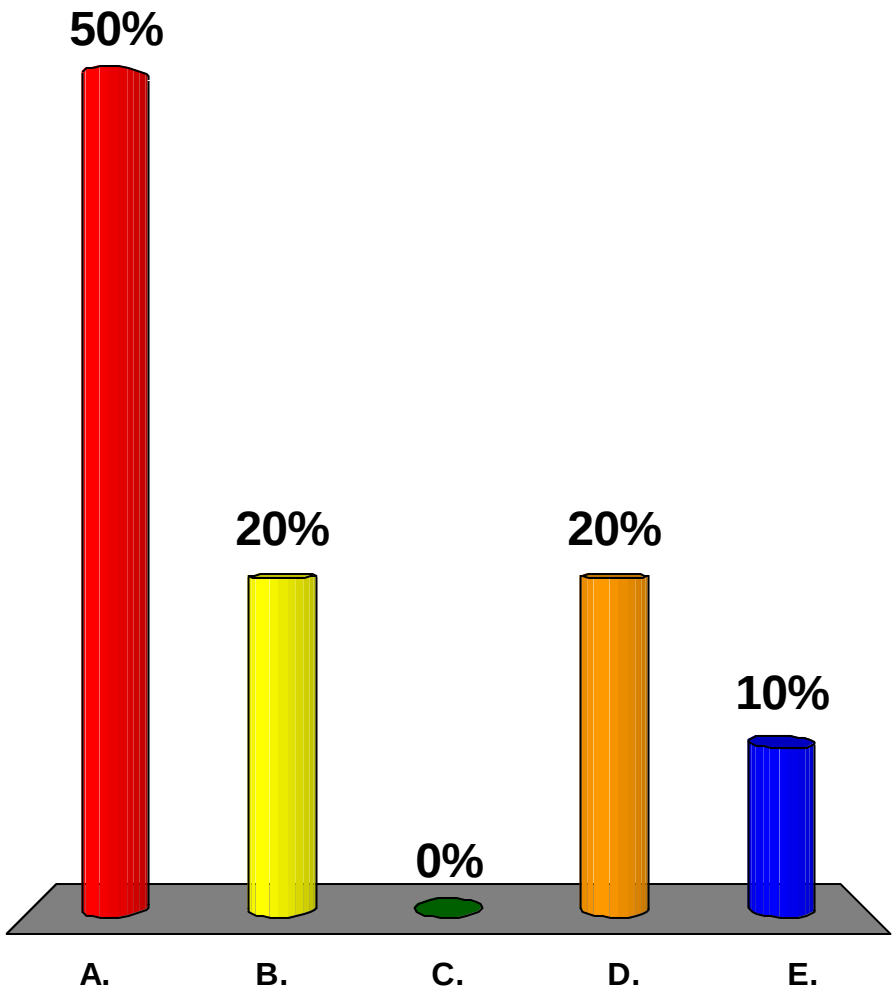
Alternatives Matrix

Derby IM 091-3(49)	Alt 1	Alt 2A	Alt 2B	Alt 3A	Alt 3B
	No Build	Superstructure Rehab		Superstructure Replacement CIP	
		2-Way Traffic Maintained by Phasing w/ Offsite Pedestrian Detour	Bridge Closed/ Offsite Detour	2-Way Traffic Maintained by Phasing w/ Offsite Pedestrian Detour	Bridge Closed/ Offsite Detour
Total Project Costs (Including Engineering and Contingencies)	$0	$1,600,000	$1,400,000	$3,000,000	$3,000,000
Town Share	$0	$0	$0	$0	$0
Project Development Duration	N/A	18 months	24 months	24 months	30 months
Construction Duration	N/A	8 weeks	4 weeks	34 weeks	24 weeks
Closure Duration (If Applicable)	N/A	N/A	4 weeks	N/A	20 weeks
Alignment Change	No	No	No	No	No
Utilities	No	No	No	No	No
ROW Acquisition	No	No	No	No	No
Design Life	10 Years	20 years	20 Years	40 Years	40 Years

Recommended

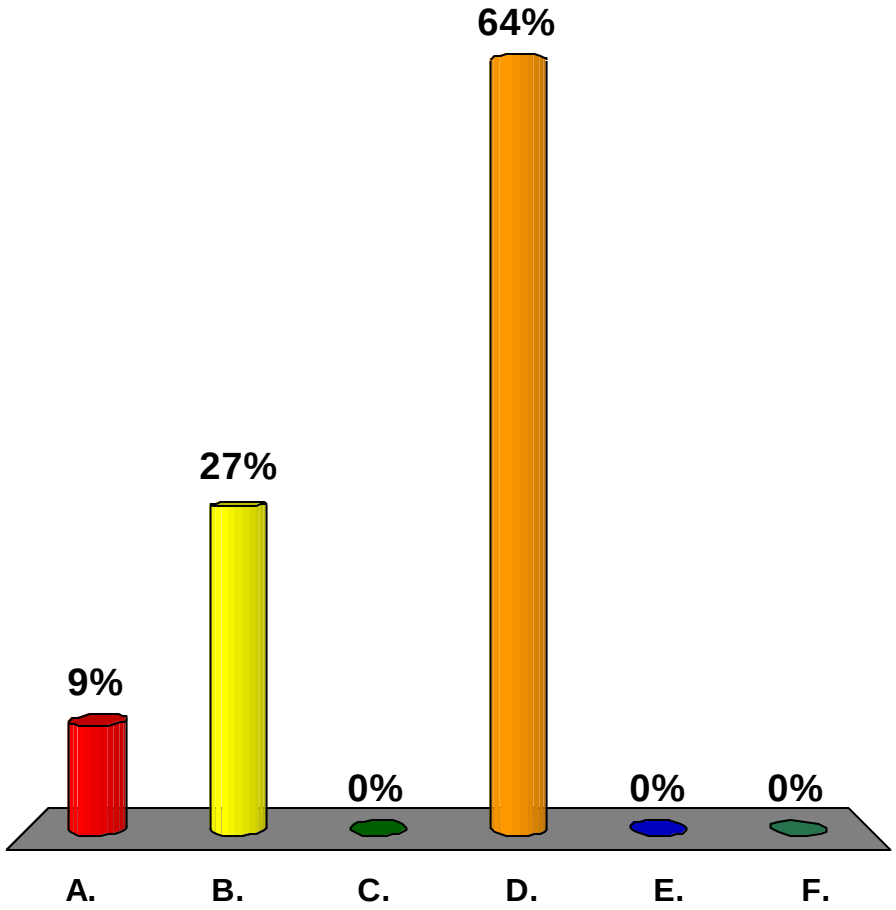
Which would you be most concerned about?

A. Traffic Delays During Construction
B. Bridge Aesthetics
C. Pedestrian Access
D. Other
E. Not really concerned



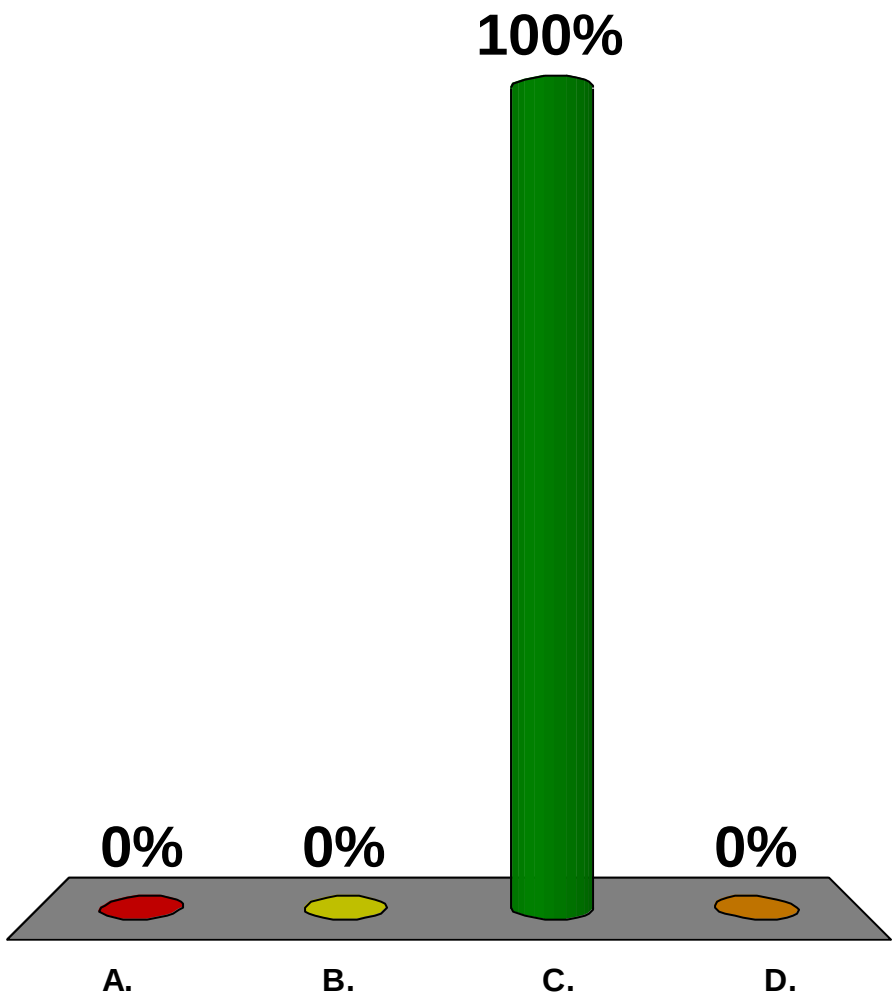
Which design aspect is the most important to you?

A. Shoulder and or sidewalk width
B. Aesthetics - Bridge Railing
C. Construction year
D. Construction Duration
E. Cost
F. Other



Did you find this presentation to be?

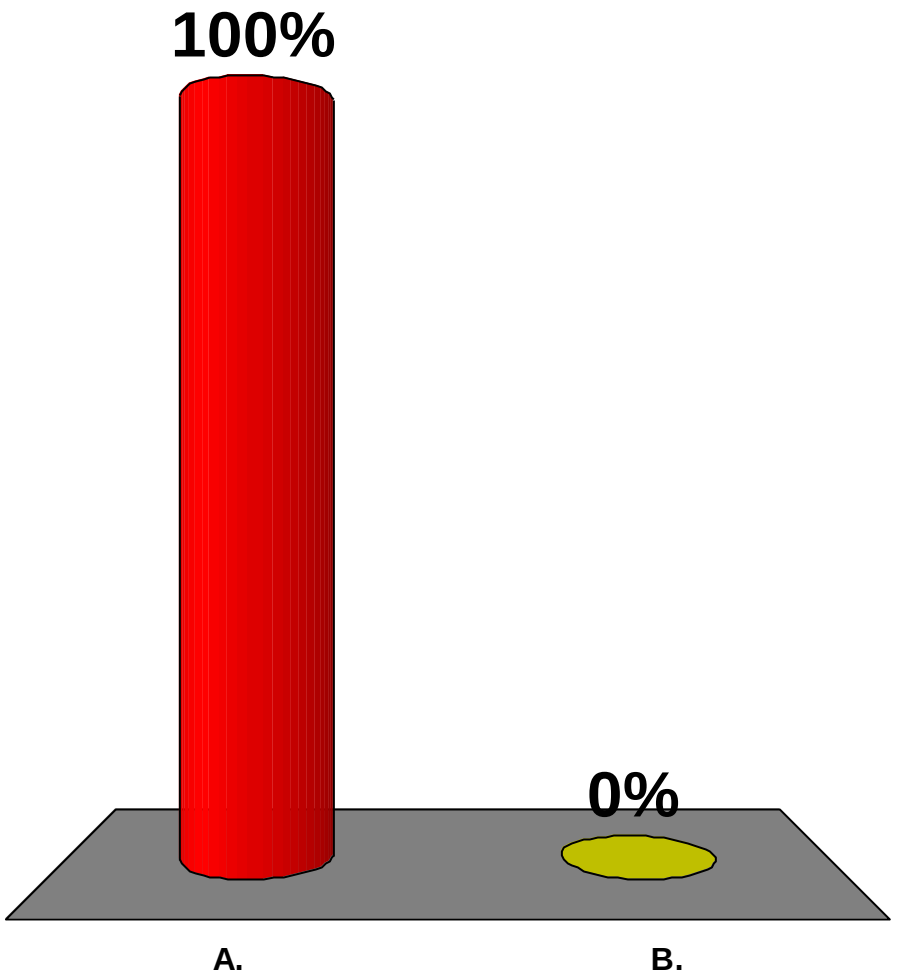
A. Too technical in nature
B. Too simplified
C. Just about right
D. Not much use at all



Do you find the recommended scope of work satisfactory?

A. Yes

B. No



Next Steps – Bridge #1

This is a list of a few important activities expected in the near future and is not a complete list of activities.

- Wait for Town response to recommendation on proposed project
- Develop Preliminary plans and distribute for comment
- Develop Final plans
- Coordination with GSA
- Advertise, Bid, Construct

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Questions and Comments

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